REMARKS

The Applicant has now had an opportunity to carefully consider the Office Action mailed July 10, 2006. It is noted that after 3½ years of prosecution, the Office has changed both the Examiner and the Art Unit that is handling the present application and that contemporaneous with these changes, the Office has issued a Final Rejection. All of the rejections are respectfully traversed and favorable action on the part of the Office is respectfully requested.

The Office Action

In the Office Action mailed July 10, 2006:

claims 4-6, 10-15 and **19-23** were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,418,895 to Lee ("Lee") in view of U.S. Patent No. 5,726,781 to Isemura, et al. ("Isemura"); and

claims 7-9 and **16-18** were rejected under 35 U.S.C. §103(a) as being unpatentable over Lee and Isemura and further in view of U.S. Patent No. 5,612,792 to Ichikawa, et al. ("Ichikawa").

The Present Application

By way of brief review, the present application is related to rendering black and white versions of color images. More particularly, the present application is directed toward methods and systems that maintain the distinctiveness of regions of an image associated with different, yet conflicting, colors in a manner that is appropriate to be applied to devices, such as, photocopiers, in a "walk-up mode." That is, the problem addressed by the subject matter of the present application is that to render black and white versions of color images, millions of colors must be mapped to, for example, 256 shades of gray that are typically available from a black and white rendering device or printer. Since millions of colors must be mapped to only a limited number (e.g., 256) shades of gray, many colors must be mapped to the same shade of gray. Colors that are mapped to the same shade of gray are referred to in the present application as conflicting colors.

The systems and methods of the present application analyze the colors in an image to find conflicting colors and applies special processing, such as a texture or spatial modulation only to no more than the regions of the black and white version of

the image that are associated with the detected conflicting colors. These methods are directed at maintaining the distinctiveness of black and white versions of color business graphic images (e.g., compare reference numerals 122, 126 of FIG. 1, (prior art) to 922 and 926 of FIG. 9 according to the methods and systems of the present application), while minimizing distortions to other kinds of images.

Since the textures or spatial modulations of the present application are applied only to conflicting colors, it is appropriate to apply the methods of the present application in a "walk-up mode." If the methods are applied, in walk-up mode, to an image, such as, for example, a photographic image, wherein textures and spatial modulations or labels would be undesired, the effect of the method of the present application to such a photographic image would barely be perceived, if at all. Photographic images rarely have large portions of constant color such as the bars and wedges of business graphic bar and pie charts. Even if such a photograph contained large regions of constant color, since the spatial modulations and textures of the present application are applied only to conflicting colors and not necessarily to all of the conflicting colors, and since the textures and spatial modulations of the methods and systems of the present application are subtle, any distortion added to an image copied in such a "walk-up mode" would be minimal. Additionally, in some embodiments (e.g., claim 7), the modulation is attenuated according to a color distance of a color from the conflicting color. In this way, subtle variations in color are associated with subtle variations in the spatial modulation. Such embodiments are even more appropriately applied in "walk-up mode" because subtle changes in color in a color original photograph, such as the subtle changes in skin tone that might occur across a photograph of a human face, will not result in sudden pattern changes from, for example, stripes to checkerboards (see FIG. 20A of Ichikawa).

The Cited References

In stark contrast, Isemura and Ichikawa are not concerned with providing "walk-up mode" methods for rendering black and white versions of color images. Instead, Isemura discloses assigning the same pattern to large ranges of colors (FIG. 9A, 9B, 10B) and adding character labels to colors (e.g., FIG. 15; column 10, lines 38-51; FIGS 33A-33B; column 16, line 43 - column 17, line 11) "which will never be indiscernible" (column 17, line 11). Moreover, Isemura does not disclose

or suggest applying a pattern only to conflicting colors or even identifying conflicting colors.

In an apparent acknowledgement that the methods of Isemura are not appropriate for a walk-up mode or "ordinary procedure," the methods of Isemura (FIG. 34, FIG. 37) require that a color recognition image editing procedure (S113, S123) be selected (column 17, lines 26-27; column 18, lines 4-6).

Ichikawa asserts that "an object of an embodiment according to the invention of Ichikawa is to provide an image processing apparatus with which an output image can be obtained using an inexpensive monochrome printer and **without spoiling the amount of color information contained in an original image**." It is respectfully submitted that if the method of Ichikawa does not spoil the amount of color information contained in the original image, then Ichikawa must apply a pattern to every color in an original image. Accordingly, Ichikawa cannot disclose or suggest applying a texture or spatial modulation to, **and only to**, at least one respective single color inversion of **at least one of the conflicting colors** thereby ensuring that all single color inversions of colors in the image are visually distinguishable from one another **while minimizing distortions in a remainder** of the single color inversion of the image.

The primary reference of the Office Action to Lee is unrelated to generating black and white versions of color images and does not disclose or suggest applying textures or spatial modulations to, and only to, at least one of the conflicting colors.

More detailed summaries of the present application and the cited references were provided in Applicant's Response E and the attention of the Examiner is directed thereto.

Reply to Response to Arguments

The Office Action responded to some of the Applicant's arguments which were presented in Applicant's Response E. However, the response appears to indicate a misunderstanding of the claims of the present application, the cited references, or both.

For example, the beginning portions of the --Response to Arguments-- address arguments that Lee and Isemura do not disclose or suggest classifying colors as "conflicting." In addressing these arguments, the Office Action asserts that

--Lee and Isemura use histograms to sort/cluster colors or hues--. However, even if the assertions of the Office Action are correct, that would not be enough to anticipate or render classifying the colors **as conflicting**. For example, according to the present application, conflicting colors are treated differently. That is, for example, if two conflicting colors are found, a texture or spatial modulation is applied to one of them. Alternatively, different respective textures or spatial modulations are applied to each of the respective conflicting colors. In contrast, Lee clusters colors together to receive the same treatment. That is, Lee maps a plurality of colors in a particular cluster to a single representative color. Where the system of the present application attempts to preserve the distinctiveness of conflicting colors, the system of Lee discards the distinctiveness in favor or color count reduction (column 6, lines 51-62; column 7, lines 16-20; column 8, lines 16-20).

As pointed out by the --Response to Arguments-- Isemura discloses creating a histogram indicating frequencies of hues (e.g., FIG. 35). However, disclosure of determining hues does not disclose or suggest identifying conflicting colors. That is, Isemura does not disclose or suggest finding colors or hues having the same luminance or other characteristic to be used for mapping the color to a single colorant (e.g., black and white) version of the colors. It is respectfully submitted that Isemura discloses identifying colors (or clusters of colors) in an image and assigns a different pattern to each identified color **whether or not** that color conflicts or would become indistinguishable from the black and white version of another color in the image.

For at least the foregoing reasons, the combination of Lee in view of Isemura does not disclose or suggest classifying peaks within the histogram that have similar luminance as conflicting colors and applying at least one distinct spatial modulation to, **and only to**, at least one respective single colorant version of at least one of the conflicting colors. Accordingly, **claim 4**, as well as **claims 5-9**, which depend therefrom, is not obvious in light of Lee and Isemura. Moreover, the combination of Lee and Isemura cannot disclose or suggest a gray scale modulator operative to add spatial modulations to single-colorant versions **of only** the conflicting colors within the single colorant version of the color image. **Claim 10**, as well as **claims 11-20**, which depend therefrom, is not anticipated and is not obvious in light of Lee and Isemura.

Lee and Isemura simply do not examine the image to find conflicting colors (as recited, for example, in independent **claim 21**). Accordingly, **claim 21** is not anticipated and is not obvious in light of Lee and Isemura.

With regard to arguments that the combination of Lee and Isemura do not disclose or suggest minimizing distortion in a remainder of the single colorant version of the image, the --Response to Arguments-- directs the attention of the Applicant to column 10, lines 5-30, and asserts that disclosure of producing a monochrome image with character patterns representing color names is disclosure of minimizing distortion in a remainder of the single colorant version of the image.

However, it is respectfully submitted that adding or appending character patterns representing color names to an image represents an extreme distortion of the image. For example, if the image being processed by the method of Isemura were a photographic image including many different colors and/or many regions of the same color, appending character patterns representing the color names to the photographic image would completely obliterate the image. The image could be buried under many color labels. Accordingly, the method of Isemura is inappropriate for "walk-up mode" implementation. Accordingly, disclosure of appending character patterns representing color names to an image does not disclose or suggest minimizing distortion in a remainder of the single color inversion of the image.

In response to arguments related to assertions of improper hindsight reasoning, the --Response to Arguments-- merely quotes a portion of *In re McLaughlin*. However, even the quoted portion of *In re McLaughlin* indicates that an obviousness rejection must take into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure. **In this regard, it is respectfully submitted that the obviousness rejections of both the previous and present Office Action do include knowledge gleaned only from the Applicant's disclosure**.

In this regard, it is respectfully submitted that Lee and Isemura do not disclose or suggest or recognize the problem of providing a method for maintaining the distinctiveness of differently colored portions of an image in a black and white or single colorant version of that image that minimizes distortions to the image and, accordingly, can reasonably be applied in a "walk-up mode." Additionally, Lee and

Isemura do not disclose or suggest identifying conflicting colors (as the phrase is used in the present application) and applying a texture or modulation only to some or all of the identified conflicting colors. Instead, in stark contrast, Lee identifies colors having similar hue and maps them to the same hue, thereby removing their distinctiveness. Isemura applies the method of Isemura to colors in an image **without regard to whether or not they are conflicting** colors.

Accordingly, it is respectfully submitted that the rejections of the present application are based on information gleaned only from the disclosure of the Applicant.

Additionally, the --Response to Arguments-- does not address the assertion of the Applicant that there is no motivation in the art for combining subject matter from Isemura into subject matter of Lee.

Furthermore, it is respectfully submitted that the --Response to Arguments-- does not address the assertion of the Applicant that the sentence alleging a motivation for combining some aspects of Lee is unclear and/or specious. The Applicant pointed out that the last portion of the sentence --to allow for accurate recognition of color images of original images in full representation when the image is produced on a monochromatic output device, such as a printer, copier or the like-- appears to be a recitation of aspects of Isemura on its own and would not require the inclusion of any aspect of Lee to be achieved.

Accordingly, it is respectfully submitted that the present Office Action is incomplete and withdrawal of the finality is respectfully requested.

In reply to arguments that Ichekawa does not disclose measuring color distance between one pixel in the image and one conflicting color, the --Response to Arguments-- directs the attention of the Applicant to the bulk of column 2 of Ichekawa (lines 5-60) and asserts that Ichekawa discloses generating a graphic pattern in accordance with a color discriminating signal such that a pattern between boundary areas of similar color can be made distinct in systems that use a histogram to divide a color space and select limited colors.

However, Ichekawa does not disclose or suggest analyzing an image to find conflicting colors. The only portion of column 2 that mentions a histogram is the portion of column 2 associated with the background of the invention. At column 2, line 5, the cited portion refers to "an upper level of histogram" which is used to divide

the color space and obtain a limited number of partial spaces (column 2, line 10) and selecting an average color in each partial space (column 2, line 12) or selecting a color with the highest frequency in each partial space (column 2, lines 15-16). Accordingly, it is respectfully submitted that this portion of Ichekawa discloses removing the distinctiveness of similar colors by selecting a color to be representative of a group or cluster of colors or "partial space." Furthermore, it is respectfully submitted that nothing in the background portion of column 2 discloses or suggests using a histogram to locate conflicting colors or colors that would be mapped to the same or similar shade in a single colorant or black and white version of the image.

The remainder of the cited portion of column 2 is directed toward a summary or partial summary of the subject matter of Ichekawa. It is respectfully submitted that the summary portion of column 2 of Ichekawa does not mention a histogram. Moreover, the cited portion indicates that to accomplish the objectives of Ichekawa, the embodiment of the invention of Ichekawa is characterized by comprising color discriminating means for discriminating the color of an input image from an input color image signal, pattern generator means for generating a predetermined graphic pattern corresponding **to each color** in accord with a color discrimination signal of the color discriminating means (column 2, lines 45-53). Since the cited portion of Ichekawa discloses generating a predetermined graphic pattern corresponding to each color, it is respectfully submitted that Ichekawa does not disclose or suggest analyzing an image to find conflicting colors and generating a pattern **only for some or all of the conflicting colors**. Accordingly, the claims of the present application are not anticipated and are not obvious in light of Lee, Isemura and Ichekawa. Accordingly, reexamination and reconsideration are respectfully requested.

With regard to the request for reconsideration of the restriction requirement, the --Response to Arguments-- asserts that "distinguishing subject matter prompting the restriction requirement was set forth in the Office Action of February 26, 2003 and that the restriction requirement was made final in the Office Action of November 18, 2003."

However, it is respectfully submitted that at that time, the Office was of the opinion that the --selectively added texture-- recited in **claim 1** was significantly different than the --modulation-- recited in **claim 4**. Now, the Office indicates that

the Examiner "interprets the graphic monochrome patterns of Isemura as spatial modulation." It is respectfully submitted that if the graphic monochrome patterns of Isemura are interpreted as spatial modulation, then consistency would appear to dictate that the --selectively added texture-- recited in withdrawn **claim 1** should also be interpreted as spatial modulation and that **fairness dictates** that the restriction requirement be withdrawn. Accordingly, withdrawal of the restriction requirement and reinstatement of **claims 1-3** is respectfully requested.

The --Response to Arguments-- asserts that the Applicant argues Lee is unrelated to classifying peaks within a histogram. However, this appears to be a misunderstanding of the arguments of the Applicant. Even if Lee discusses peaks within a histogram, Lee does not disclose or suggest classifying peaks **as conflicting colors**. Even if, as asserted by the --Response to Arguments--, Lee discloses a color distance calculation relative to a clustering process, Lee does not disclose or suggest classifying peaks within the histogram that have similar luminance as conflicting colors as recited, for example, in **claim 4** of the present application. The subject matter of the present application identifies conflicting colors so that textures or spatial modulations can be applied only to conflicting colors, thereby minimizing distortions to the image. It is respectfully submitted that Lee, Isemura and Ichekawa do not disclose or suggest identifying or classifying conflicting colors and applying texture or modulation only to select ones of the conflicting colors.

The --Response to Arguments-- also asserts that the Applicant argues that Isemura does not disclose applying patterns to conflicting colors. However, it is respectfully submitted that this represents a misunderstanding of the position of the Applicant. While the Applicant respectfully submits that Isemura is silent with regard to conflicting colors, it is respectfully submitted that that point is of less interest. What is of greater interest is whether or not Isemura, or any of the cited references, disclose or suggest applying patterns, textures or modulations **only to** conflicting colors. It is respectfully submitted that Isemura does not disclose or suggest identifying conflicting colors in an image or applying texture or modulation only to selected ones of the identified conflicting colors. Instead, it is respectfully submitted that Isemura discloses generating a pattern for the area having similar color without regard to whether or not that area or color conflicts with any other area or color.

For at least the foregoing reasons, it is respectfully submitted that **claims 4-6**, **10-15** and **19-23** are not anticipated and are not obvious in view of Lee and Isemura and that **claims 7-9** and **16-18** are not anticipated and are not obvious in light of Lee, Isemura and Ichekawa. Accordingly, withdrawal of the rejections of **claims 4-23** is respectfully requested.

The Claims are not Obvious

Claims 4-6, **10-15** and **19-23** were rejected under 35 U.S.C. §103(a) as being unpatentable over Lee in view of Isemura.

However, in explaining the rejection of **claim 4**, the Office Action asserts that Lee discloses classifying peaks within a histogram that have similar luminance as conflicting colors. In this regard, the Office Action directs the attention of the Applicant to column 6, lines 8-18. As explained above, it is respectfully submitted that the cited portion of column 6 describes a particular kind of color distance calculation relative to a clustering process (column 5, lines 48-57) and is unrelated to classifying peaks within a histogram that have similar luminance as **conflicting colors**. It is respectfully submitted that Lee includes no reference to conflicting colors or any phrase that can be fairly interpreted as being analogous to conflicting colors as described in the present application.

For at least the foregoing reasons, **claim 4**, as well as **claims 5-9**, which depend therefrom, is not obvious in light of Lee and Isemura taken alone or in any combination.

Additionally, Lee is not concerned with rendering single colorant or black and white versions of color images. In this regard, Lee is non-analogous art with respect to the claims of the present application. Indeed, the Office Action stipulates that Lee fails to disclose many elements recited in **claim 4** including rendering a color image into a single colorant color space and applying at least one distinct spatial modulation to, and only to, at least one representative single colorant version of at least one of the conflicting colors.

The Office Action relies on Isemura for disclosure of the stipulated deficiencies of Lee. However, Isemura does not disclose or suggest applying spatial modulation to, and only to, single colorant versions of conflicting colors. Isemura does not disclose or suggest or acknowledge a method that applies graphic

monochrome patterns or spatial modulations only to conflicting colors. Instead, it is respectfully submitted that Isemura appears to advocate or suggest applying the same pattern to large portions of a color space or gamut of an image (FIG. 9A(e), FIG. 9B(a)(b), FIG. 10B(a)(b) and FIG. 44). Isemura does not disclose or suggest applying graphic monochrome patterns or spatial modulations only in a limited way, thereby ensuring that all single colorant versions of colors in the image are visually distinguishable from one another while minimizing distortions in a remainder of the single colorant version of the image. As if to emphasize this point, Isemura acknowledges that a system user should have to specifically request the processing of Isemura (e.g., FIG. 5; FIG. 7; **FIG. 6B, S4, S5**; **FIG. 8B, S4, S5**; FIG. 9A; FIG. 9B; FIG. 10A; FIG. 10B; **FIG. 34, S113**; **FIG. 37, S123**).

For at least the foregoing additional reasons, **claim 4**, as well as **claims 5-9**, which depend therefrom, is not anticipated and is not obvious in light of Lee and Isemura taken alone or in any combination.

Additionally, there is **no motivation in the art**, other than that provided by the present application, to combine the cited portions of Lee and Isemura. The motivation asserted by the Office Action "to allow for accurate recognition of color in images of original images in full representation when the image is reproduced in a monochrome output device" is something allegedly achieved by Isemura (see Abstract). Therefore, there is no motivation to combine the color clustering of Lee into the subject matter of Isemura or to combine the entire disclosure of Isemura into the subject matter of Lee. If there were any motivation to combine Lee and Isemura, it could only be found in the present application, and the rejection of **claim 4** is, therefore, based on **impermissible hindsight**.

For at least the foregoing additional reasons, **claim 4**, as well as **claims 5-9**, which depend therefrom, is not anticipated and is not obvious in light of Lee and Isemura taken alone or in any combination.

In explaining the rejection of **claim 5**, the Office Action indicates that the Examiner interprets clustering as classifying. It is respectfully submitted that merely clustering is not fairly interpreted as classifying. Moreover, the claims of the present application recite classifying **as conflicting colors**. Even if the clustering of Lee could be fairly interpreted as classifying, Lee does not disclose or suggest classifying the identified peaks of Lee as **conflicting colors**.

Regarding **claim 6**, the Office Action asserts that Isemura discloses applying spatial modulation further comprises associating a unique modulation to the single colorant versions of each of the conflicting colors and directs the attention of the Applicant to FIG. 42. However, FIG. 42 of Isemura is a plan view of an operation unit (column 4, line 4) **and does not disclose or suggest associating a unique modulation to single colorant versions of conflicting colors**. As explained above, it is respectfully submitted that Isemura does not disclose or suggest applying patterns only to conflicting colors. Indeed, in each of the examples of Isemura, **Isemura applies a pattern for all of the colors in the example images**.

For at least the foregoing additional reason, **claim 6** is not anticipated and is not obvious in light of Lee and Isemura.

In explaining the rejection of independent **claim 10**, the Office Action asserts that Lee discloses an image analyzer operative to find and classify conflicting colors in the color image and directs the attention of the Applicant to column 5, lines 26-57, in support of the assertion. However, while the cited portion of Lee discusses using a histogram, Lee does not disclose or suggest using a histogram in order to classify **conflicting colors** in the image. Instead, Lee discloses a histogram in order cluster colors about a representative peak. That is, the entire color histogram of Lee is partitioned into separate volumes (one for each peak) such that each point c in a volume has a shorter distance to the peak m in that volume than to any other peaks (column 5, lines 50-54). Lee does not disclose or suggest that the peaks are associated with conflicting colors or compare the luminosity or any other aspect of the peaks. Further in this regard, arguments similar to those submitted regarding **claims 1** and **5** are submitted in support of **claim 10**.

Additionally, the Office Action stipulates that Lee fails to disclose an image processor operative to generate a single colorant version of a color image or a gray scale modulator operative to add spatial modulations to single colorant versions of **only the conflicting colors** within the single colorant version of the color image.

Instead, the Office Action asserts that Isemura discloses these elements. However, as explained above, Isemura does not disclose or suggest adding spatial modulations to single colorant versions of only the conflicting colors. FIG. 42, referenced by the Office Action, is a plan view of an operation unit and does not disclose or suggest conflicting colors. Column 19, line 59 - column 20, line 3, points

out that an operator must enter a color detection patterning mode and, therefore, differentiates the subject matter of Isemura from the subject matter of the present application, which can be included in a "walk-up mode" of an image processor or copying machine.

The remainder of the cited portion describes a scanning process whereby a CCD image sensor reads color information of an original and wherein signals from the CCD image sensor are converted into digital signals by A/D converters. Isemura explains that a luminance signal Y is generated from the digital signals in the cited portion of column 20. However, nothing in the cited portions of Isemura discloses or suggests **identifying conflicting colors** or adding spatial modulations to single colorant versions of **only the conflicting colors**.

For at least the foregoing reasons, **claim 10**, as well as **claims 11-20**, which depend therefrom, is not anticipated and is not obvious in light of Lee and Isemura taken alone or in any combination. Additionally, there is no motivation in the art to combine the cited portions of Lee and Isemura. In this regard, arguments similar to those submitted with regard to motivation to combine presented in reference to **claim 1** are submitted in support of **claim 10**.

For at least the foregoing additional reasons, **claim 10**, as well as **claims 11-20**, which depend therefrom, is not anticipated and is not obvious in light of Lee and Isemura taken alone or in any combination.

With regard to **claim 11**, the Office Action directs the attention of the Applicant to column 5, lines 50-57. However, the cited portion of Lee indicates that --the entire color histogram is then partitioned into separate volumes (one for each peak) such that each point c in a volume has a shorter distance to the peak m in that volume than to any other peaks. Each peak in the input color image is then labeled, according to the volume that contains its color--. Lee is not concerned with generating single colorant versions. Therefore, contrary to the assertion of the Office Action, Lee does not disclose or suggest a histogram collector operative to classify pixels in the color image based on a characteristic **that is also used to generate a single colorant version**. The histogram of Lee is simply used to cluster colors about peaks.

With regard to **claim 12**, the Office Action asserts that Lee discloses a conflicting color detector operative to examine the histogram and find pixels that are

similar with respect to the characteristic that is used to generate the single colorant version. However, Lee does not disclose or suggest generating a single colorant version. Therefore, Lee cannot disclose or suggest finding pixels that are similar with respect to a characteristic that is used to generate **a single colorant version**.

With regard to **claim 13**, the Office Action asserts that Lee discloses a color relationship discriminator operative to receive conflicting color classification information. However, Lee is silent with regard to conflicting colors. Column 5, lines 21-34 (cited by the Office Action), indicate that luminance is dominated by a variation of surface orientation and illumination gradiant and can, therefore, be discounted by giving it a smaller waiting factor when computing color differences between two pixels (column 5, lines 21-24). The remainder of the cited portion describes the size or dimensions of a three-dimensional histogram to be used for clustering and is completely unrelated to conflicting color classification information.

Regarding **claim 14**, the Office Action directs the attention of the Applicant to column 17, lines 37-47, of Isemura and asserts that Isemura discloses a spatial modulation attenuator operative to attenuate a gray scale modulation based on the relationship between the color image pixel and the conflicting color. However, as explained above, Isemura does not disclose or suggest identifying conflicting colors or processing based on the identification of conflicting colors. Moreover, column 17, lines 37-47 (cited by the Office Action), discusses editing of an image to add a legend or "graphic and character patterns" which are appended to the upper right of a form (e.g., FIG. 36A/36B) so that the relationships between graphic patterns and colors can be understood. The graphic patterns are added to **all** the bar graphs in the illustrated image. Isemura does not disclose or suggest modulating the patterns or modulating the patterns based on a relationship between the color image pixel and a conflicting color.

For at least the foregoing additional reasons, **claims 11-14** are not anticipated and are not obvious in light of Lee and Isemura taken alone or in any combination.

Claims 21-23 were rejected based upon similar rationale as **claims 4-6**, respectively. In this regard, arguments similar to those submitted in support of **claims 4-6** are submitted in support of **claims 21-23**.

Claims 7-9 and **16-18** were rejected under 35 U.S.C. §103(a) as being unpatentable over Lee and Isemura and further in view of Ichikawa.

However, **claims 7-9** depend from **claim 1** and **claims 16-18** depend from **claim 10** and are patentably distinct for at least that reason.

Additionally, **claim 7** recites measuring a color distance between at least one pixel in the image and at least one **conflicting color**. Lee discloses measuring a distance between pixels and peaks. However, the peaks are not classified as conflicting colors and none of the cited references disclose or suggest identifying or classifying conflicting colors.

For at least the foregoing reasons, **claim 7**, as well as **claims 8-9**, which depend therefrom, is not anticipated and is not obvious in light of Lee, Isemura and Ichikawa taken alone or in any combination.

Additionally, even if Ichikawa discloses applying an attenuated spatial modulation to at least one pixel in the single colorant version of the image, it is respectfully submitted that Ichikawa does not disclose or suggest the level of attenuation being a linear function of the measured color distance. It is respectfully submitted that it is unclear exactly what column 13, lines 32-65, of Ichikawa disclose. However, even if the cited portion of column 13 and FIGS. 20A and 20B are meant to disclose some form of attenuation of a reference modulation, it is respectfully submitted that the step discontinuities apparent in FIG. 20B clearly indicate some non-linear function. Therefore, **claim 9**, which recites --the level of attenuation being a linear function of the measured color distance-- is not anticipated and is not obvious in light of Lee, Isemura and Ichikawa taken alone or in any combination.

Alternatively, if the modulation technique of Ichikawa is taken to be linear, then it is respectfully submitted that Ichikawa does not disclose or suggest the non-linear attenuation recited in **claim 8**, since Ichikawa, if disclosing any form of attenuation at all, can only be construed as disclosing one form of attenuation (e.g., FIG. 20B).

For at least the foregoing additional reason, at least one of **claims 8** and **9** is not anticipated and is not obvious in light of Lee, Isemura and Ichikawa.

Claims 16-18 were rejected on the same basis as **claim 7**. However, each of **claims 16-18** recite aspects related to --conflicting color--.

Additionally, arguments similar to those submitted in support of **claim 7** are submitted in support of **claims 16-18**. Furthermore, **claim 18** recites wherein the relationship between the conflicting color and the color image pixel comprises a color distance within a CIELAB color space. The Office Action does not even assert that the combination of references disclose or suggest a relationship between a conflicting color and a color image pixel comprises a color distance within a CIELAB color space.

For at least the foregoing reason, at least one of **claims 7-9** and **16-18** are not anticipated and are not obvious in light of Lee, Isemura and Ichikawa.

Furthermore, there is no motivation in the art for combining the cited portions of Lee, Isemura and Ichikawa. For example, as indicated above, Isemura was filed after Ichikawa and Hiroyuki Ichikawa is an inventor in both Ichikawa and Isemura, yet the inventors of Isemura did not find it obvious to include the subject matter cited by the Office Action from Ichikawa into the invention of Isemura. Furthermore, Lee did not find it obvious to include the subject matter from Isemura and Ichikawa into the system of Lee.

For at least the foregoing reason, **claims 7-9** and **16-18** are not anticipated and are not obvious in light of Lee, Isemura and Ichikawa taken alone or in any combination.

Telephone Interview

In the interests of advancing this application to issue the Applicant(s) respectfully request that the Examiner telephone the undersigned to discuss the foregoing or any suggestions that the Examiner may have to place the case in condition for allowance.

CONCLUSION

Claims 1-23 remain in the application. For at least the foregoing reasons, the case is in condition for allowance. Accordingly, an early indication of thereof is respectfully requested.

Respectfully submitted,

FAY, SHARPE, FAGAN,
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